

REMARKS

Overview of the Office Action

Claims 1-5 and 7-15 have been rejected under 35 U.S.C. §103(a) as unpatentable over U.S. Patent No. 7,010,305 (“Immonen”) in view of U.S. Patent Pub. No. 2004/0004949 (“Cayla”).

Claims 6 and 16-17 have been rejected under 35 U.S.C. §103(a) as unpatentable over Immonen in view of Cayla, and further in view of U.S. Patent No. 7,031,718 (“Jouppi”).

Status of the claims

Claims 1, 3, 4, 6, 10, have been amended.

Claims 2 and 11 have been canceled.

Claims 1, 3-10, and 12-17 remain pending.

Rejections of claims 1-5 and 7-15 under 35 U.S.C. §103(a)

The Office Action states that the combination of Immonen and Cayla teaches all of Applicants’ recited elements.

Before discussing the cited prior art and the Examiner’s rejections of the claims in view of that art, a brief description of the subject matter described in the present application is deemed appropriate to facilitate understanding of the arguments for patentability. The description is not meant to argue unclaimed subject matter.

Applicants’ invention is directed to a quality of service management method in a packet mode mobile communication network for a service to be executed by a subscriber in the network to which a data stream corresponds. Applicants’ recited method includes determining a set of quality of service parameters that include at least one first quality of service parameter that

corresponds to a subscriber priority and at least one second quality of service parameter that is related to a type of service (see paragraph [0070] of the published version of the present application (US 2006/0135172)). Applicants' recited method further includes determining an overall priority level (NPG) associated with the data stream based on a value of the at least one first quality of service parameter and a value of the at least one second quality of service parameter (see paragraph [0107]). The value of the overall priority level alone indicates a priority for accessing network resources to execute the service by the subscriber (see paragraph [0108]). Applicants' recited method still further includes associating the overall priority level (NPG) with at least one quality of service process to be applied to the data stream (see paragraph [0109]). The quality of service process differentiates access to network resources.

Thus, Applicants' recited method enables a mobile communications network operator to give priority in the processing of data streams based on an overall priority level that is based on both the service and the subscriber. The fact that this prioritization takes into account both the subscriber and the type of service enables the operator to give priority to certain subscriber categories with respect to other subscribers while offering services that have different requirements in terms of throughput and delay, and enables the operator to establish several priority levels for processing different data streams on the network in case of a network overload (see paragraphs [0101] and [0108] of Applicants' published specification).

Further, according to Applicants' recited invention, each of the configurable overall priority levels is associated with at least one predefined QoS process that is used by each of the network nodes (BSS, SGSN, GGSN) to differentiate the access to resources in case of a network overload (see paragraph [0109] of Applicants' published specification). In other words, the network operator is able to apply a different QoS process to a corresponding data stream for each

user request according to its associated overall priority level to differentiate access to network resources amongst service subscribers.

Consequently, the overall priority level is used for enabling a fair distribution of available network resources among the various data streams, wherein each data stream corresponds to the execution of a service request. In that sense, each QoS process relates to differentiating access to network resources, and the overall priority level is used for distributing the available network resources among the various data streams based on the on-going user requests. Such predefined QoS processes include acceptance control, pre-emption, and differentiated resource allocation.

Acceptance control involves checking whether the resources are available for establishing the call at the node level of the network in question. Thus, in case of a network overload and depending on the overall priority level associated with the data flow that was determined by Applicants' recited invention, the acceptance control process determines whether the request should be accepted or not (see paragraph [0111] of Applicants' published specification).

Pre-emption involves the possibility of pre-empting the resources of another radio access support service (RAB). Thus, in case of an overload at a network node level, pre-emption is based on the overall priority level determined by the combination of QoS parameters according to Applicants' recited invention, in order to determine the subscribers with low priority level and force them to be removed from the network (see paragraph [0112] of Applicants' published specification).

Differentiated resource allocation involves, in case of a network overload during the channel establishment request, and for each node of the network in question, taking into account the overall priority level determined by the combination of QoS parameters according to

Applicants' recited invention in order to allocate a proportional throughput at the particular priority level (see paragraph [0113] of Applicants' published specification).

Independent claim 1 has been amended to recite a method that includes, inter alia, "associating said overall priority level (NPG) with at least one quality of service process to be applied to the data stream, said quality of service process differentiating access to network resources", which Immonen and Cayla, whether taken alone or in combination fail to teach or suggest. Support for the claim amendment can be found in Applicants' original claim 2.

Immonen discloses a method for assigning values of service attributes to transmissions, radio access networks, and network elements. According to Immonen, a Serving GPRS Support Node (SGSN) 12 stores default Quality of Service (QoS) profile 14 which includes a set of common values for some service attributes for all customers (see col. 8, lines 32-36 of Immonen). The values for the service attributes including the delivery order, the maximum (Service Data Unit (SDU) size, the SDU error ratio, the residual Bit Error Rate (BER), the delivery of erroneous SDUs, and the allocation/retention priority (see col. 8, lines 36-40 of Immonen). A subscriber specific Max QoS is stored for each customer/subscriber (see col. 8, lines 47-51 of Immonen). A user equipment 11 may also transmit desired values of service attributes (see col. 8, lines 63-66 of Immonen). Accordingly, there are up to three sets of attributes that are stored in the SGSN 12 (see col. 9, lines 6-10 of Immonen).

The Examiner cites the col. 8, line 24 to col. 9, line 13 of Immonen as teaching Applicants' recited step of "associating said overall priority level (NPG) with at least one quality of service process to be applied to the data stream, said quality of service process differentiating access to network resources". Applicants disagree.

According to the cited passages of Immonen, a service profile 15 includes subscribed values for the different attributes required for a real-time traffic class, and a subscribed value for the traffic handling priority for non-real-time traffic classes. The user equipment 11 can also transmit desired values of service attributes to the SGSN 12 that are to be used for the requested transmission. Accordingly, up to three sets of service profiles are accumulated in the SGSN 12. Based on these service profiles, the SGSN 12 determines which values are to be employed for the different attributes required for the requested connection.

The passages of Immonen cited by the Examiner only discuss the “parameter decision”, which refers to the operation of determining or selecting the QoS profile that is to be used for a particular requested connection. Nothing in the cited passages of Immonen teaches or suggests the added step of associating a QoS profile with at least one quality of service process to be applied to a data stream, where the quality of service process differentiates access to network resources. In fact, no quality of service process, as described above with respect to Applicants’ invention, is mentioned at all.

Therefore, Immonen fails to teach or suggest the limitation “associating said overall priority level (NPG) with at least one quality of service process to be applied to the data stream, said quality of service process differentiating access to network resources”, as now expressly recited in Applicants’ amended claim 1.

Cayla fails to teach or suggest what Immonen lacks. Cayla discloses methods and apparatus for optimizing the allocations of resources (e.g. time slots on the Agprs interface in a cellular mobile telecommunications network for packet data). The Agprs interface of Cayla is provided between a packet control unit (PCU) and a base station controller (BSC). The PCU of

Cayla determines which cells of the network are least and most loaded and sends a request to the BSC to reallocate one resource unit (time slot) (see Abstract of Cayla).

According to Cayla, efficient use of resources on an Agprs interface 20 are effected by dynamically adapting the resource allocation based on at least one of the following: a) the amount of packet traffic of all the cells controlled by the BSC, b) the type of traffic handled, especially the Quality of Service (QoS) parameters of the traffic (see paragraphs [0030]-[0032] of Cayla).

However, Cayla mentions nothing regarding quality of service processes or applying such a QoS process to a data stream based on an overall priority level.

Therefore, Cayla also fails to teach or suggest “associating said overall priority level (NPG) with at least one quality of service process to be applied to the data stream, said quality of service process differentiating access to network resources”, as now expressly recited in Applicants’ independent claim 1.

In view of the foregoing, Applicants submit that Immonen and Cayla, whether taken alone or in combination, fail to teach or suggest the subject matter recited in amended independent claim 1. Accordingly, claim 1 is patentable over Immonen and Cayla under 35 U.S.C. §103(a).

Claims 10 and 15-17 recite or have been amended to recite limitations similar to claim 1 and are, therefore, deemed to be patentably distinct over Immonen and Cayla for at least those reasons discussed above with respect to independent claim 1.

Dependent claims

Claims 2 and 11 have been canceled. Claims 3-5, 7-9, and 12-14, which depend from independent claims 1 and 10 incorporate all of the limitations of the respective independent

claim and are, therefore, deemed to be patentably distinct over Immonen and Cayla for at least those reasons discussed above with respect to independent claims 1 and 10.

Rejection of claims 6 and 16-17 under 35 U.S.C. §103(a)

The Office Action states that the combination of Immonen, Cayla, and Jouppi teaches all of the elements recited in Applicants' claims.

Immonen and Cayla have been previously discussed and does not teach or suggest the invention recited in Applicants' independent claim 1.

Because Immonen and Cayla do not teach or suggest the subject matter recited in Applicants' independent claim 1, and because Jouppi does not teach or suggest any elements of the independent claims that Immonen and Cayla are missing, the addition of Jouppi to the reference combination fails to remedy the above-described deficiencies of Immonen and Cayla.

Claims 16 and 17 recite limitations similar to claim 1 and are, therefore, deemed to be patentably distinct over Immonen, Cayla, and Jouppi for at least those reasons discussed above with respect to independent claim 1.

Claim 6, which depends from independent claim 1, incorporates all of the limitations of claim 1 and is, therefore, deemed to be patentably distinct over Immonen, Cayla, and Jouppi for at least those reasons discussed above with respect to independent claim 1.

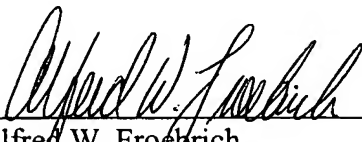
Conclusion

In view of the foregoing, Applicants respectfully request reconsideration and withdrawal of all rejections, and allowance of all pending claims in due course.

Should the Examiner have any comments, questions, suggestions, or objections, the Examiner is respectfully requested to telephone the undersigned in order to facilitate reaching a resolution of any outstanding issues.

Respectfully submitted,
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